



**Direct Testimony of Taylor Allred**

**RE: Tennessee Valley Authority’s 2024 Integrated Resource Plan**

January 25, 2024

**Please state your name for the record.**

My name is Taylor Allred.

**By whom are you employed?**

I am employed by Greenlink Analytics.

**Have you testified in other IRP proceedings before?**

Yes, I have.

**Do you have any materials or exhibits to accompany your testimony today?**

Yes.

**Have those been provided in advance?**

Yes.

**Have you prepared a summary of your analysis for today?**

Yes.

**Introduction**

In the following testimony, I will briefly offer comments on TVA’s 2024 Integrated Resource Plan (IRP) with respect to equity, environmental justice, energy cost burdens, energy efficiency, distributed solar generation, and economic development. In my experience, IRP proceedings are particularly valuable forums for addressing these issues. As discussed by Witness Stanton, intervening before state utility commissions affords interested parties valuable rights, including data discovery and cross-examination, which TVA does not offer. This limits opportunities for meaningful engagement on important equity issues like climate change and energy affordability.

## Climate change and inequity

According to the United Nations (UN): “Climate change is the defining issue of our time and we are at a defining moment. From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. Without drastic action today, adapting to these impacts in the future will be more difficult and costly.”<sup>1</sup> The Biden Administration has also recognized the urgency of drastic climate action, and has set a goal of achieving a carbon-free power sector by 2035.<sup>2</sup> In a November 2023 IRP working group presentation, TVA included a graphic indicating a “net zero energy aspiration” date of 2050.<sup>3</sup> TVA should instead aspire to lead the nation in meeting the White House goal.

Mitigating the inequitable impacts of environmental and economic emergencies like climate change is central to TVA’s mission. About 90 years ago, TVA was founded in response to another historic crisis, when the United States was at the height of the Great Depression, and the poverty-stricken Tennessee Valley was struggling with underdevelopment and frequent disastrous flooding. Literally and figuratively, TVA brought light into a time of darkness and transformed the Valley and the lives of its people through electrification, economic development, flood management, and reforestation.<sup>4</sup> However, TVA often fell short when it came to equitable community engagement. For example, many people felt powerless and aggrieved over where lands were flooded, and communities irrevocably separated, in the creation of reservoirs for hydropower and flood control. Progress is not without the potential for serious inequities, and to fulfill its recent Equity Action Plan, TVA must do better in its 2024 IRP.<sup>5</sup>

## Environmental justice

The Environmental Protection Agency (EPA) defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”<sup>6</sup> The American Public Power Association (APPA) has noted that “environmental justice is broadly defined by four principles: restorative justice, distributive justice, procedural justice, and recognition justice.”<sup>7</sup> Often added to this list is intergenerational justice. APPA further observed that “community members may be able to identify alternatives, solutions, or potential benefits that might not otherwise be known or accepted by others.”<sup>8</sup>

A November 2022 op-ed in *The Tennessean* decried the absence of representatives from environmental justice communities on TVA’s Regional Energy Resource Council and highlighted injustices, including health impacts on remediation workers and the dumping of waste in a Black community following the 2008 Kingston coal ash spill, as well as the delayed transition away from fossil fuels, a lack of meaningful community engagement, and high energy cost burdens that disproportionately impact non-white and low-wealth communities.<sup>9</sup> The article was written by Pearl Walker, who is co-chair of the Memphis NAACP environmental justice committee, and Michael Malcom, who is the executive director of Alabama Interfaith Power & Light and the People’s Justice Council.

While TVA has made some progress, including establishing internal environmental justice teams and discussing the topic in its invite-only IRP working group, it has a lot of room for improvement, and has not published an environmental justice strategic plan according to the Biden Administration’s EJ Scorecard website.<sup>10</sup> In its 2019 IRP process, TVA did not emphasize environmental justice, which was only discussed within a limited scope in the accompanying Environmental Impact Statement.<sup>11</sup>

## Federal resources

Through recent federal legislation, including the Inflation Reduction Act of 2022, unprecedented amounts of federal funding have been allocated for renewable energy and energy efficiency. TVA should seek to ensure that the Tennessee Valley gets its fair share of these funds, including tax credits for solar energy that are now available to TVA through direct pay.<sup>12</sup> By pursuing new models for distributed energy, including community solar, TVA could enable more ratepayers to hedge against future rate increases.<sup>13</sup> Energy efficiency has long been recognized as a least-cost resource, and it not only supports low rates, but also creates jobs and helps ratepayers lower their bills by reducing their usage.<sup>14,15</sup> TVA's mission requires it to balance the provision of low-cost power with environmental stewardship and economic development, and its IRP models should value all the benefits of energy efficiency – not just low rates.<sup>16</sup>

TVA should utilize federal resources to value environmental justice costs and benefits in its IRP modeling. EPA and other federal agencies offer many helpful resources, including grants, technical assistance, and environmental justice mapping tools.<sup>17,18</sup> The White House has also provided guidance through executive orders. For example, the Justice40 Initiative “directs 40% of the overall benefits of certain Federal investments – including investments in clean energy and energy efficiency . . . to flow to disadvantaged communities (DACs).”<sup>19</sup> According to the Department of Energy (DOE), Justice40-covered energy programs have been established within 23 federal agencies and offices, including all four power marketing administrations; TVA is not listed among them.<sup>20</sup>

## Energy burden, race, and health

DOE research shows that energy burden, which refers to the percentage of household income spent on energy, is highest in Southeastern states and that low-income households “face an energy burden three times higher than other households.”<sup>21</sup> The national average for all households is 4%.<sup>22</sup> A 2020 literature review co-authored by former TVA Board member Marilyn Brown found that energy burden was not declining and was especially high among minorities.<sup>23</sup> Households have been defined as “energy poor” when spending more than 6% of their income on energy, based on the premise that a household should not spend more than 30% of its income on housing costs, according to federal guidelines, and utility bills should be no higher than 20% of those costs.<sup>24</sup>

In 2022, Greenlink Analytics found that the Black-majority city of Memphis had some of the highest levels of energy burden in Tennessee and the nation, with a median of 8%, ranking it fourth among U.S. cities; energy burden was also highest in predominantly Black neighborhoods within Memphis.<sup>25</sup> The highest energy burden was 27%, and 31% of Memphis households had energy burdens greater than 10%.<sup>26</sup> Utilizing the Greenlink Equity Map, I also recently found a moderate correlation across Tennessee counties between energy burden and the percentages of their populations who are Black.<sup>27</sup> In addition, I found that Tennessee counties show a strong correlation between energy burden and asthma rates.<sup>28</sup> According to the Asthma and Allergy Foundation of America, the “burden of asthma in the United States falls disproportionately on Black, Hispanic and American Indian/Alaska Native people.”<sup>29</sup> A 2018 study by the American Council for an Energy-Efficient Economy (ACEEE) concluded that “reducing annual electricity use by 15% nationwide would save more than six lives every day, prevent nearly 30,000 asthma episodes each year, and save Americans up to \$20 billion through avoided health harms annually.”<sup>30</sup> Another 2018 study, co-authored by University of Tennessee professor Bruce Tonn, determined that the value of health benefits from the federal Weatherization Assistance Program were greater than the energy cost savings.<sup>31</sup>

In meetings I coordinated with TVA management about eight years ago, we heard from community members across the Tennessee Valley about their experiences with unaffordable utility bills and inefficient housing that made it difficult to maintain healthy indoor temperatures and humidity levels. These struggles could quickly cascade. It's hard to sleep and be productive at work and school when freezing in the winter and sweltering in the summer. Some resorted to staying with relatives for parts of the year. Some had to ration medication and forgo adequate nutrition to keep the lights on. They knew disconnections could lead to losing their homes. The federal Department of Housing and Urban Development has recognized that energy burden can cause homelessness and found in a study of St. Paul, MN, that "twenty-six percent of evictions were due to utility cut-offs."<sup>32</sup> Energy burden can be a life-or-death issue. Just last week, TVA experienced a record load event due to freezing temperatures, which left 14 people dead in Tennessee.<sup>33</sup>

Equitably addressing energy burden intersects with each of the core principles of environmental justice. Redressing historical and ongoing inequities is restorative justice. Fairly spreading utility costs and benefits is distributive justice. Equitable involvement in planning is procedural justice. Acknowledging the cruelty of energy poverty is recognition justice. Minimizing future energy burdens is intergenerational justice.

One common objection to increasing low-income energy efficiency centers around utility concerns about higher-income ratepayers cross-subsidizing programs they are not eligible to participate in. However, research has shown that the rate impacts of low-income programs on higher-income households are actually lower than the rate impacts endured by low-income ratepayers from efficiency programs they cannot afford to participate in due to upfront costs.<sup>34</sup>

### **TVA's record on energy efficiency**

TVA has a spotty record of starts and stops when it comes to energy efficiency. In its 2011 and 2015 IRPs, TVA planned for significant increases in energy efficiency and subsequently made notable progress in program implementation. This included successful low-income programs like Extreme Energy Makeovers, which helped thousands of ratepayers achieve energy savings averaging 36% at no cost to participants.<sup>35</sup> However, TVA eliminated this program and most other offerings by 2018 and included only minimal levels of energy efficiency in its 2019 IRP. As a result, TVA's energy savings have fallen behind commission-regulated utilities in the Southeast, which trail behind national leaders themselves.<sup>36</sup> In its annual State Energy Efficiency Scorecard, ACEEE has consistently ranked states served by TVA as some of the least efficient in the nation, especially in the utilities category, with Mississippi in a three-way tie for 46<sup>th</sup> place nationally.<sup>37</sup> Mississippi has one of the highest poverty rates in the nation, at 18%, and Black people make up a higher percentage of the population there than in any other state.<sup>38,39</sup> For Tennessee, ACEEE allotted only 1.5 points out of a possible rating of 15 points in its utilities category.<sup>40</sup>

TVA recently took a positive step by announcing \$1.5 billion in demand-side management investments from 2024 through 2028, including energy efficiency, demand response, electric vehicles, and electrification.<sup>41</sup> This is a big increase, but much more is needed to lift all ratepayers out of energy poverty, and Greenlink found that \$1-1.5 billion was needed in Memphis alone.<sup>42</sup>

To fairly value energy efficiency in its 2024 IRP, TVA should research best practices of leading utilities, which have been highlighted in various reports by ACEEE.<sup>43</sup> One important component of energy efficiency modeling is the creation of a TEAPOT study, which refers to technical, economic, and

achievable potential. There is a lot of inherent uncertainty in potential studies, but also a lot of room for unreasonable assumptions that deflate the results.<sup>44</sup> For example, some consider only a limited set of program designs, exclude non-energy benefits, omit certain cost-effectiveness tests, and apply excessive discounts based on economic factors like free-ridership and leakage. Despite offering to sign a non-disclosure agreement, I have not been able to obtain a copy of TVA's recent potential study.

### **Job creation and economic development**

Investing in clean energy and energy efficiency also creates a lot of jobs. Last year, E2 reported that there were already more than 80,000 clean energy jobs in Tennessee, including about 50,000 in energy efficiency, 16,000 in clean vehicles, 8,000 in storage and grid work, and 6,500 in renewable energy.<sup>45</sup> Utilizing Greenlink's Clean Energy Jobs Calculator, I have estimated that TVA's \$1.5 billion demand-side investment could lead to a net impact of about 10,000 additional local jobs. This estimate is based solely on TVA's spending on program costs and does not include the effects of additional ratepayer investments or the economic benefits of avoided power plant capacity and generation needs, reduced energy bills, health benefits, or other non-energy benefits. These jobs are mostly in manufacturing and construction and are generally expected to pay between \$39,000 and \$58,000 per year, which is about 35-100% higher than the \$29,000 median annual income in Tennessee.<sup>46</sup> TVA's investment could cause an estimated net increase in job-based income of about \$660 million. Putting more money into the pockets of low- and moderate-income families also has a high multiplier effect on economic growth since they have a higher propensity to spend that money locally.

### **Recommendations and conclusion**

In conclusion, I offer the following recommendations to TVA regarding the issues I just discussed:

1. Allow formal intervenors in the IRP process, with standard rights afforded in state commission proceedings, including data discovery and cross-examination;
2. Partner with environmental justice organizations to conduct regular listening tours in low-income communities across the Tennessee Valley, to learn about experiences with high energy burden and gather input on resource planning;
3. Model pathways to achieve the White House goal of net-zero carbon emissions by 2035;
4. Improve representation from environmental justice communities on the Regional Energy Resource Council and IRP working group;
5. Calculate environmental justice costs and benefits to utilize as data inputs in resource modeling, including costs of inequitable distribution of health and economic impacts;
6. Fully utilize federal grants, technical assistance, and other resources to maximize equitable investments in cost-effective renewable energy and energy efficiency;
7. Prioritize low-income energy efficiency in the deployment of the recently announced \$1.5 billion investment in demand-side management;
8. Include low-income carve-outs in energy efficiency and distributed energy programs, and target program deployment to remediate racial inequities;
9. Consult with stakeholders to incorporate best practices in energy efficiency potential studies, including the valuing of non-energy benefits and consideration of Societal Cost Tests; and finally,
10. Provide support for the workforce development needed to advance an equitable clean energy transition, including job training and guidelines for diverse hiring, fair compensation, safety standards, and other essential workers' rights.

To uphold its mission and fulfill the goals of its Equity Action Plan, TVA must improve stakeholder engagement. If TVA includes more voices, it will benefit both TVA and the diverse communities of the Tennessee Valley. TVA will gain valuable insights and improved community relations. Communities will gain greater opportunities for relief from energy burden and environmental injustices, which they understand better than anyone. Thank you.

### Does that conclude your summary?

Yes, at this time.

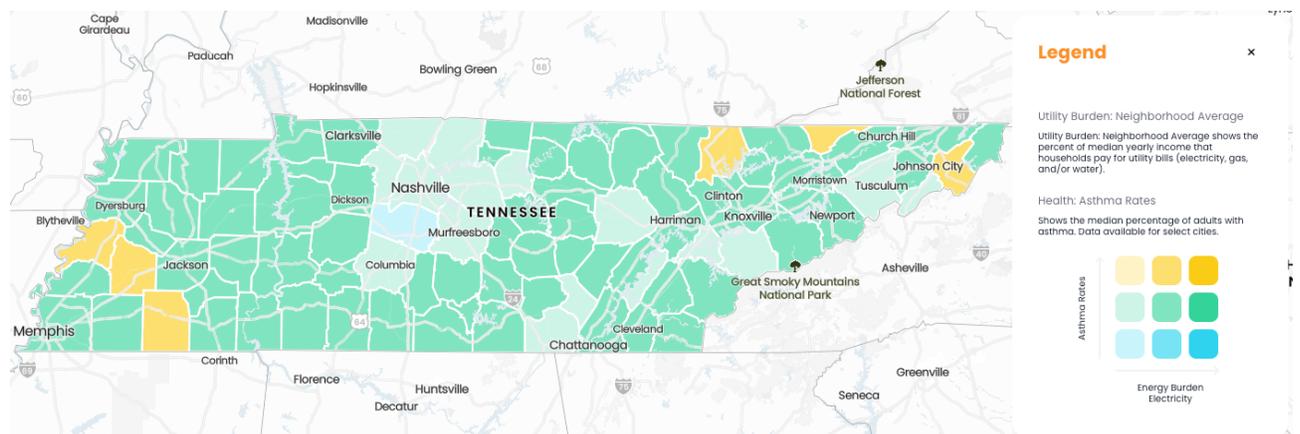
### Figures

Figure 1: Moderate correlation between energy burden and Black populations among TN counties



Source: Greenlink Equity Map. Greenlink Analytics. 2024.

Figure 2: Strong correlation between energy burden and asthma rates among TN counties



Source: Greenlink Equity Map. Greenlink Analytics. 2024.

Figure 3: Job creation effects of announced \$1.5 billion investment in demand-side management

<b>Greenlink Analytics' Clean Energy Jobs Calculator: Estimated Impacts of TVA's Announced Energy Efficiency and Demand-Side Management Investments (2024-2028)</b>			
<b>State:</b>	<b>Tennessee</b>		
<b>Investments (NPV)</b>		<b>Top-5 Gaining Industries</b>	
Residential EE/DR	\$700,000,000	<b>Industry</b>	<b>Jobs Gained</b>
Commercial EE/DR	\$350,000,000	Manufacturing	3,900
Industrial EE/DR	\$350,000,000	Construction	1,600
Electric Vehicles	\$5,000,000	Professional, Scientific, and Technical	500
EV Infrastructure	\$20,000,000	Federal, State, and Local Government*	100
Commercial Electrification	\$20,000,000	Finance and Insurance	100
<b>Total Investment</b>	<b>\$1,445,000,000</b>		
<b>Jobs Summary</b>		<b>Income Summary (millions)</b>	
Direct	6,200	Direct	\$530
General Economy	6,100	General Economy	\$410
<b>Total Jobs Added</b>	<b>+12,300</b>	<b>Total Income Added</b>	<b>+\$940</b>
Jobs Lost	-2,700	Income Lost	-\$280
<b>Net Job Effect</b>	<b>+9,600</b>	<b>Net Income Effect</b>	<b>+\$660</b>
<b>Top-5 Gaining Positions</b>			
<b>Industry</b>	<b>Occupation</b>	<b>Median Annual Wage</b>	<b>Jobs Gained</b>
Manufacturing	Production	\$40,000	2,000
Construction	Construction and Extraction	\$45,000	900
Manufacturing	Transportation and Material Moving	\$39,000	400
Manufacturing	Office and Administrative Support	\$42,000	300
Manufacturing	Installation, Maintenance, and Repair	\$58,000	200
*Excluding state and local schools and hospitals and the U.S. Postal Service (OES Designation).			
Note: State-level jobs and income estimates are based on direct, indirect, and induced job-creation effects of TVA-funded equipment purchases and installation only. This does not include ratepayer/customer-funded investments or the economic impacts of utility bill savings, avoided generating capacity, avoided emissions, health benefits, or other non-energy benefits. Investments in each category represent net present value, could vary considerably, and are rounded estimates based on TVA's Energy Efficiency & Demand Management Expansion Fact Sheet (November 2023).			

Source: Greenlink Analytics' Clean Energy Jobs Calculator

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